

CYTOKINE ACTIVATION OF HUMAN MACRO- AND MICROVESSEL DERIVED ENDOTHELIAL CELLS

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The responses of human umbilical vein (HUVE), synovial microvessel (HSE) and lung microvessel (HLE) endothelial cells to the cytokines interleukin-1 (IL-1), tumor necrosis factor (TNF) and gamma interferon (IFN γ) were compared. TNF treatment of HUVE induced urokinase (uPA) expression and accelerated HUVE mediated matrix degradation and tube formation on Matrigel, effects which could be abrogated by co-treatment with IFN γ . HLE demonstrated high constitutive uPA, matrix degradative activity, and rapid tube formation on Matrigel. TNF had no effect on HLE uPA expression or matrix degrading activity. Treatment of HUVE and other large vessel endothelial cells (aorta, pulmonary artery) with IL-1 or TNF resulted in 3 to 10 fold increases in surface intercellular adhesion molecule-1 (ICAM-1) expression. In contrast IL-1 and TNF were poor stimulants for HSE and HLE ICAM-1 expression. ICAM-1 expression in HSE and HLE was markedly increased by co-treatment of IL-1 or TNF with IFN γ .